SAFETY AND BUILDINGS DIVISION
Plumbing Product Review
P.O. Box 2658
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commerce.wi.gov
Wisconsin
Department of Commerce

Jim Doyle, Governor
Mary P. Burke, Secretary

November 16, 2006

CDA TECHNOLOGIES,INC.
MIDWEST-IL REGIONAL OFFICE
GREG STERCHI
815 S 9TH AVE
LAGRANGE IL 60525

Re: Description: STORMWATER TREATMENT DEVICE
Manufacturer: CDA TECHNOLOGIES,INC.
Product Name: CONTINUOUS DEFLECTIVE SEPARATION (CDS) STORM WATER TREATMENT DEVICES
Model Number(s): PMIU20_15, PMSU20_15_4, PMSU20_15, PMSU20_20, PMSU20_25, PMSU30_20, PMSU30_30, PMSU40_30, PMSU40_40, PSWC30_30, PSWC40_40, PSWC56_40, PSWC56_53, PSWC56_68, PSWC56_56_78, PMXU20_15, PMXU20_20, PSW50_42/50, PSW70_70 AND PSW100_60/80/100
Product File No: 20060324

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of November 2011.

This approval is contingent upon compliance with the following stipulation(s):

- A plumbing plan must be submitted and approved prior to each proposed installation in accordance with Comm 82.20 (1) (a) 2. A Plumbing Plan Review must be successfully completed prior to each proposed installation. A minimum of four sets of completed plans and specifications, signed by a Wisconsin registered Architect, Designer, Engineer or licensed Master Plumber shall be submitted along with the following specific information:

  a. A "Plumbing Plan Review Application" (i.e. SBD-6154) and required fee;
  b. A scaled plot plan;
  c. A scaled floor plan;
  d. A drain, waste and vent system (i.e. DWV) isometric drawing for the engineered blackwater/graywater system;
  e. A non-potable water system isometric drawing;
  f. A potable water system isometric drawing;
  g. A maintenance manual addressing all serviceable components or systems;
  h. A written contingency plan; and
  i. Water calculation worksheets:

     1. The complete non-potable water system; and
     2. The complete potable water system

  j. A copy of this approval letter

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- For system installations that include irrigation and/or inflitration, the folllowing information must also be provided:

  k. The soil type; and
  l. Infiltration rate

  After the plan review process is complete, and the installation is finished, the State Plumbing Consultantassigned to the county in which the installation is located, shall inspect the completed installation. The final installation shall be completed and passed before the system is put into service.

  Some of the information listed previously may not pertain to a specific installation.

- Monitoring of these systems shall be performed by licensed POWTS Maintainers, Master Plumbers or licensed professional Engineers. The maintenance of these systems may be performed by an unlicensed individual.

- Any wastewater or waste materials (e.g. sludge, scum) withdrawn from these systems must be disposed of in accordance with NR 113.

- Installation and servicing of these systems must be performed in accordance with the manufacturer's written instructions and this approval letter. A copy of the manufacturer's installation and servicing instructions, and a copy of this approval letter, must be given to the owner of each system.

- The manhole (entry) openings for these systems shall be a minimum of 23 inches in the least dimension. The inspection ports for these systems shall be a minimum of three inches in the least dimension.

  Inspection ports and manhole openings for systems, located below ground, shall extend to a minimum of the finished grade. Inspection, servicing and maintenance openings for these systems shall terminate with a means that prevents entrance of deletrious materials.

  Covers for these systems located at, or above, grade for openings larger than eight inches in the greatest dimension shall be provided with locking devices. These locking devices shall remain locked except for inspection, servicing or maintenance purposes.

- Installation and servicing of this system must be performed in accordance with the component manufacturers written instructions and this approval letter. Copies of the component manufacturers installation and servicing instructions, and a copy of this approval letter must be given to the owner of this system.

- The review undertaken by Commerce staff does not include review and/or approval of this submittal as meeting DNR specifications for ch. NR 151.

- When this product is installed, the installation must be in accordance with the manufacturer's printed design installation instructions, ch. Comm 82, plan approval under s. Comm 82.20, and any product approval stipulations. When there is a conflict between manufacturer's installation instructions and plan approval conditions or product approval stipulations, the plan approval conditions or product approval stipulations will take precedence.

- Installation-- Installation of this product must be in accordance with the manufacturer's printed installation instructions. A copy of the manufacturer's installation instructions must be given to the property owner, installer and submitted along with other information required by the governing agency for the installation.

- TABLE 1
MODEL PERFORMANCE CAPABILITY

MODEL NUMBER (see key below)	DESIGN FLOW RATES CFS	MGD	M^3/SEC
PMIU20_15	0.7	0.5	0.02
PMSU20_15_4	0.7	0.5	0.02
PMSU20_15	0.7	0.5	0.02
PMSU20_20	1.1	0.7	0.03
PMSU20_25	1.6	1.0	0.05
PMSU30_20	2.0	1.3	0.06
PMSU30_30	3.0	1.9	0.08
PMSU40_30	4.5	3.0	0.13
PMSU40_40	6.0	3.9	0.17
PSWC30_30	3.0	1.9	0.08
PSWC40_40	6.0	3.9	0.17
PSWC56_40	9.0	5.8	0.25
PSWC56_53	14.0	9.0	0.40
PSWC56_68	19.0	12.0	0.54
PSWC56_78	25.0	16.0	0.71
PSW30_30	3.0	1.9	0.08
PSW50_42	9.0	5.8	0.25
PSW50_50	11.0	7.1	0.31
PSW70_70	26.0	17.0	0.74
PSW100_60	30.0	19.0	0.85
PSW100_80	50.0	32.0	1.40
PSW100_100	64.0	41.0	1.80

MODEL DESIGNATIONS:

PMSU = PRECAST MANHOLE STORM WATER UNIT
PSWC = PRECAST STORM WATER CONCENTRIC
PSW = PRECAST STORM WATER
XX _XX = SCREEN DIAMETER_SCREEN HEIGHT
(the screen diameter and screen height are both specified to the nearest tenth of a foot)

CONVERSION FACTORS:

1 CUBIC FOOT PER SECOND (CFS) = 0.0283 CUBIC METERS PER SECOND (M^3/SEC)
1 CFS = 0.64512 MILLION GALLONS PER DAY (MGD)
1 M^3/SEC = 35.31 CFS
1 MGD = 1.55 CFS

- If these devices are installed in a situation in which the storm water is likely to contain petroleum based oils and greases (e.g. service garages, motorized vehicle parking areas, service stations, truck stops, streets and highways, etc.), then these devices must be installed using a floating nanofiber sorbent material. The nanofiber sorbent material must be the same as, or technically and demonstratibly equivalent to, the nanofilter sorbent material cited in the test report entitled "OIL AND GREASE REMOVAL BY FLOATING SORBENT IN A CDS DEVICE", AUTHORED BY Michael K. Senstrom and Sin-Lin Lau of the Civil and Environmental Engineering Department, UCLA.

- TABLE 2
SORBENT AND NON-SORBENT OIL AND GREASE REMOVAL EFFICIENCIES

SORBENT (TYPE)	FLOW RATE (gpm)	TIME (min)	SAMPLE VOLUME (ml)	O&G MASS (mg)	O&G CONC. (mg/l)	% REMOVAL (%)
nanofiber	125	influent	500	14.67	29.34	-
		0	515	0.02	0.04	-
		3	510	1.34	2.63	91.04
		6	510	6.26	12.27	58.16
		10	515	1.60	3.11	89.41
		15	500	1.51	3.02	89.71
		20	505	0.68	1.35	95.41
		25	500	1.09	2.18	92.57
		30	500	1.13	2.26	92.30
		60	500	0.04	0.08	-
none	125	influent	500	9.86	19.72	-
		0	500	0.24	0.48	-
		3	505	2.03	4.02	79.62
		6	500	2.11	4.22	78.60
		10	500	2.33	4.66	76.37
		15	500	3.19	6.38	67.65
		20	500	2.28	4.56	76.88
		25	510	1.97	3.86	80.41
		30	500	1.79	3.58	84.85
		60	520	1.74	3.35	-

- These devices are capable of trapping silt and clay size particles in addition to large particles. These devices will capture and retain 100% of floatable and all solid materials equal to or greater than the selected screen size opening (i.e. 2.4 mm or 4.7 mm) for all flow conditions up to the device's designed flow capacity, regardless of the specific gravity of the material. These devices will also capture 100% of all neutrally buoyant material equal to or greater than selected screen size opening (i.e. 2.4 mm or 4.7 mm) for all flow conditions up to the device's designed flow capacity. These devices will permanently retain all captured materials.

  The performance statement above is based on test report entitled "Particle Removal using Continuous Deflection Separation" by Spencer Slominski, Scott A. Wells, PhD., P.E. Professor and Chris J. Berger, PhD. of Portland State University.

  The specifications for, 5 Kg. each , the respective of the test sands used for the aforementioned study are as follows:

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TABLE 3
F-110 SAND FOR 20-INCH SCREEN TESTS, 5 Kg. DISTRIBUTION

SIEVE SIZE (#)	SIZE RANGE (micrometers)	RETAINED (%)	STANDARD DEVIATION (%)	MASS FOR A 5 Kg. WEIGHT (g)
30	>600	0.00	0.01	0.1
40	425-600	0.03	0.03	1.5
50	297-425	0.71	0.39	35.4
70	215-297	6.46	3.17	322.9
100	150-215	49.07	10.11	2,453.5
200	75-150	40.73	7.06	2,036.6
Pan	<75	3.00	1.17	150.1

TABLE 4
17 SILICA SAND FOR SCREEN TESTS, 5 Kg. DISTRIBUTION

SIEVE SIZE (#)	SIZE RANGE (micrometers)	RETAINED (%)	STANDARD DEVIATION (%)	MASS FOR A 5 Kg. WEIGHT (g)
30	>600	0.16	0.03	7.9
40	425-600	6.98	2.00	348.8
50	297-425	59.71	3.32	2,985.5
70	215-297	23.27	2.86	1,163.4
100	150-215	8.99	1.70	449.5
200	75-150	0.89	0.22	44.7
Pan	<75	0.00	0.01	0.2

TABLE 5
F-110 SAND FOR 26-INCH SCREEN TESTS, 5 Kg. DISTRIBUTION

SIEVE SIZE (#)	SIZE RANGE (micrometers)	RETAINED (%)	STANDARD DEVIATION (%)	MASS FOR A 5 Kg. WEIGHT (g)
30	>600	0.00	0.00	0.0
40	425-600	0.03	0.00	1.6
50	297-425	5.73	1.01	286.5
70	215-297	27.08	1.07	1,354.0
100	150-215	53.79	0.95	2,689.7
200	75-150	12.26	2.12	612.9
Pan	<75	1.11	0.23	55.4

- These devices must be installed, maintained and serviced as directed by the manufacturer to perform as advertised.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Glen W. Schlueter
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